

REMARKS

Claims 1-13 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. First, it is the position of the Office that the recitation "to be used" in claim 1 (line 3) renders the claims indefinite because it is not clear whether the limitations that follow the phrase are part of the claimed invention. Second, the recitation in claim 6 of "an interlayer is provided" is considered to be vague and indefinite.

Claim 1 has been amended to delete the recitation "to be used" and to insert the recitation "--which is a current collector--" after "metallic foil" in line 7. These amendments are believed to avoid the Section 112 rejection of claim 1.

Claim 6 has been amended by deleting the "wherein" clause and reciting the forming of an interlayer in terms of a positive step, i.e.: "--further comprising the step of forming an interlayer on the roughened surface of said metallic foil prior to depositing the thin film--". These amendments are believed to avoid the Section 112 rejection of claim 6.

Claims 1-5 are rejected under 35 U.S.C. §102(b) as being clearly anticipated by Suhara et al. (U.S. Patent No. 6,195,251 B1)

("Suhara"), Kabata et al. (U.S. Patent No. 5,900,336) ("Kabata"), Ohsawa (U.S. Patent No. 5,162,178) ("Ohsawa") or Satou et al. (U.S. Patent No. 6,117,589) ("Satou") and claims 10-12 are rejected under 35 U.S.C. §102(b) as being clearly anticipated by Chang (U.S. Patent No. 5,542,163) ("Chang") or Satou. Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over Chang or Satou, claims 6-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Suhara, Kabata, Ohsawa, or Satou in combination with Chang, and claim 9 is rejected under 35 U.S.C. §103(a) as being unpatentable over Suhara, Kabata, Ohsawa or Satou.

Claim 1 has been amended in light of these rejections to precisely recite depositing of a thin film composed of active material capable of lithium storage and release, on the roughened surface of the metallic foil, which is a current collector, (1) so as to form irregularities on the surface of the thin film corresponding to irregularities on the roughened surface of the metallic foil; and to recite the step of (2) forming gaps in the thin film in a manner to extend in its thickness direction from valleys of the irregularities of the thin film surface when the thin film is expanded and shrinked due to a charge/discharge

reaction. These amendments are supported in the specification disclosure on page 9, lines 2-6 and 6-11, respectively. The cited references, alone and in combination, fail to suggest a method for fabricating an electrode for a lithium secondary battery which includes these steps.

Suhara discloses an electrode assembly for an electric double layer capacitor including a current collector and an electrode formed by applying a slurry on the current collector (col. 9, lines 57-67).

Kabata discloses the fabrication of an electrodes by use of a coating liquid (col. 11, lines 20-24).

Ohsawa discloses a negative electrode for a secondary battery including a current collector, a first layer disposed on a roughened surface of the current collector, and a second layer disposed on the first layer and including an ion conductive material (abstract). The surface of the first layer has an uneven configuration which conforms with another uneven configuration of the roughened surface of the current collector (abstract and Col. 12, line 61, to Col. 13, line 5). The lithium layer 3 may comprise an alloy of lithium such as Li-Si (Col. 4, lines 54-58). The

negative electrode can be produced by vacuum evaporation, sputtering, or electrolytic deposition (Col. 7, lines 40-52).

Sato discloses an electrode tab having a roughened surface at the end joined to the current collector. An electrode tab is an element different from a current collector. Therefore, this reference is irrelevant to the present invention.

Chang discloses that an electrolytically deposited metal roughens a surface of a foil. (col. 2, lines 2-3).

None of the references, with the exception of Ohsawa, discloses the above feature (1) now recited in claim 1. The above feature (2) is not recited in any of the references. The references, therefore, fail to provide the necessary motivation required under 35 U.S.C. § 103(a) to modify the prior art methods in the manner required to obtain the method of the present invention.

Removal of the 35 U.S.C. § 102 and 35 U.S.C. § 103(a) rejections is in order and is respectfully solicited.

The foregoing is believed to be a complete and proper response to the Office Action dated April 10, 2003, and is believed to place this application in condition for allowance. If, however, minor

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RESPONSE UNDER 37 C.F.R. §1.111

**PATENT
NON-FINAL**


issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

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